

their friends in St. James's Hall, but as the hall holds only 2,000, and as there are between 3,000 and 4,000 Fellows, we suspect, making all allowances, that many hundreds will be disappointed. Why does the Society not boldly take the Albert Hall and admit the outside public at a moderate charge? We are sure there would be a balance over after clearing expenses.

BERLIN GEOGRAPHICAL SOCIETY.—The Berlin Gesellschaft für Erdkunde celebrates on April 27 and 28 the completion of its fiftieth year. The festival committee, consisting of Baron v. Richthofen, Dr. Nachtigal, Dr. Jagor, and other well-known explorers, have issued invitations to all the geographical societies of Germany and Austria to send delegates. It is expected that over a thousand will be present at the closing dinner. This society, founded by Alexander von Humboldt and Karl Ritter, has manifested from its commencement a vitality and energy second to none of the European geographical societies, and forms in Berlin a favourite gathering-place for the leading minds in all departments of science. Its membership numbers at present 700.

AUSTRALIA.—An exploring party sent into the interior from Port Darwin, North Australia, under the leadership of Mr. Sergison, has returned to the latter place, and reports that in the vicinity of Victoria River, which runs into the Queen's Channel on the west coast of the Northern Territory, as well as near Fitzmaurice River, which flows more to the north, and near Daly River, which runs into Anson Bay, it discovered land with excellent soil, with a comparatively cool climate, and with numerous creeks in every direction.

ARCTIC EXPLORATION.—The preparations for the Dutch North Polar Expedition are being actively continued, as the expedition is to sail in May next. The first and principal halt will be made at Spitzbergen. The erection and fitting up of a station for meteorological observations is reserved for a future expedition; the present one, however, is to select the place best adapted for a station of this nature. 10,000 florins are still wanting to cover the expenses of the expedition.

CANADA.—On December 22 last a Canadian Geographical Society was founded at Quebec. The principal aim of the society will be to obtain a thorough knowledge of the geography of Canada.

NOTES

THE distribution of the prizes for 1877 by the French Academy of Sciences took place on January 28 under the presidency of M. Peligot. For the two great prizes in mathematics and in physical science no memoir worthy of mention has been sent to the academy. The subjects were very limited in their scope and it is said that the academy proposes to alter its system and confine itself to giving its highest prizes to independent workers irrespective of the subject-matter of their work. Among other prizes awarded we at present mention the following:—The Plumet prize was taken by M. de Freminville, for his improvements in marine steam engines; the Fournayran prize was awarded to M. Malet, for tramway steam-engines, as used from Bayonne to Biarritz; the Lalande prize in astronomy has been rightly awarded to Prof. Asaph Hall, the discoverer of the satellites of Mars; the Valz prize to the Brothers Henry, for their celestial maps; the Montyon prize in physiology was awarded conjointly to Prof. Ferrier and MM. Carville and Duret; the Lacaze prize for the best work in physics has been given to M. Cornu, the well-known professor of the Polytechnic School for his determination of the velocity of light by direct measurement; the Breant prize (4,000*l.*) to the discoverer of a cure for cholera has not, of course, been awarded, but the interest of that sum has been given to M. Rendu, for several memoirs of etiology. A copy

of Laplace's works, magnificently bound, has been delivered, as usual, in the name of Laplace's deceased wife, to the pupil of the Polytechnic School who has passed the most successful examination. The young laureate for 1877 is M. Dougadot, a native of Carcassonne (Aude), where he was born in 1855.

ON January 11 the centennial of Linné's death was observed in nearly all the cities of Sweden. In Stockholm the Academy of Sciences held a special session, attended by King Oscar, at which Prof. Malmsten delivered an interesting oration on the scientific achievements of the great botanist. At Upsala the occasion summoned together a number of notabilities who listened to an address from the Swedish botanist, Prof. Th. Fries. The university of Lund celebrated the day in a similar manner, the rector issuing, in connection with it, a short sketch of Linné's residence there, and Prof. Ogarth delivering the oration. At Frankfort-on-the-Main the memorable day was celebrated by a solemn meeting of the "Freie deutsche Hochstift," in the Goethe House. The president, Prof. Volger, in a brilliant speech, gave an outline of the life, the mental development, the activity, and importance of Linné, and closed by praising the mental ties which unite all races and nations. The meeting unanimously resolved to send a congratulatory telegram to King Oscar II., of Sweden, which was then sent off, written in the Latin language. An hour later his Majesty telegraphed his thanks in the same language. At Amsterdam, where the great Swedish botanist passed the early part of his life, there was also a Linné celebration on Jan. 10. At the same time an exhibition of objects relating to him, such as manuscripts, medals, portraits, &c., was arranged. Prof. Oudemans delivered the memorial speech.

THE French Scientific Association has issued the programme of its weekly lectures for the next three months, and provides a most promising list of famous names and attractive subjects. Among them we notice Prof. Dumas, "Eulogy on Leverrier;" M. Wolf, "Variability of the Nebulæ," which were given on January 26; M. Cornu, "The Phylloxera," February 2; M. Jamin, "Electric Illumination," February 9; Prof. St. Claire Deville, "Liquefaction of Gases," February 23; Prof. Bert, "Influence of Light on Life," March 9; Prof. Mascart, "Atmospheric Electricity," March 23; M. Tissandier, "The Upper Regions of the Air," March 30; M. Blanchard, "Geographical Distribution of Animals," April 13. The lectures take place at the Sorbonne, and as admission is easily obtained by strangers, they offer visitors to Paris an admirable opportunity of hearing the leading French *savants*. The first meeting, on January 26, was attended by more than 1,000 people, under the presidency of M. Dumas. The proceedings were opened by a report read by M. Milne-Edwards, the president of the Association, reviewing the work done by the Association, which was created by M. Leverrier more than fifteen years ago. It is owing to the assistance lent by the Association that weather-warnings have been so largely popularised in rural France and the agricultural service established by the physicist of the observatory.

JAPAN has an active archaeological society, bearing the title of Kobutsu-Kai (Society of Old Things). Its members, numbering 200, are scattered throughout the land, but meet once a month in Yeddo. They consist chiefly of wealthy Japanese gentlemen, learned men, and priests; the latter especially have been the means of bringing before public attention a vast number of ancient objects which have been hidden in the treasures of the temples, or preserved in private families. H. von Siebold, Attaché of the Austrian Embassy, at Yeddo, and a member of the society, has lately published a *brochure*, which will serve as a guide for the systematic archaeological study of the land; von Siebold has lately made a most interesting dis-

covery of a prehistoric mound at Omuri, near Yeddo, containing over 5,000 different articles in stone, bronze, &c. In a recent communication to the Berlin Anthropologische Gesellschaft, he describes the origin of the terra-cotta images found in old Japanese burial grounds. It appears that up to the year 2 B.C. it was the custom to surround the grave of a dead emperor or empress with a number of their attendants, buried alive up to the neck, their heads forming a ghastly ring about the burial spot. At the date referred to the custom was abolished, and the living offerings were replaced by the clay figures, which have hitherto attracted so much attention.

THE new ethnographical museum in the Palais de l'Industrie, at Paris, was opened on Wednesday last week, the Minister of Public Instruction pronouncing the opening discourse. Deputations were present from all the learned bodies and public institutions of the city, and general satisfaction was expressed at the admirable manner in which Baron de Watteville, the director, had accomplished his task of organisation and arrangement.

THE Bolton Corporation have just adopted plans for the Chadwick Museum to be erected in the Bolton public park at a cost of 5,000*l.* The amount was left by the will of Dr. Chadwick for this purpose upon condition that the Corporation provided a site. The architect is Mr. R. K. Freeman.

PROF. W. M. GABB writes as follows from Puerto Plata, Sto. Domingo, December 29:—In the issue of November 1 you quote a Paris correspondent of the *Times*, who says that the Madrid people deny the authenticity of the recent finding of the remains of Columbus safe in the Cathedral of Santo Domingo. Of course the Spaniards are not willing to acknowledge that they were hoaxed, but the fact is nevertheless beyond dispute. The remains of Christopher Columbus are to-day in Santo Domingo. Unfortunately I am not able now to send you the full data. Suffice it to say that the chain of evidence is complete and has been verified with all possible precaution. The cheat was perpetrated by a then member of the "Cabildo," who had the knowledge, the tact, and the unscrupulousness to perpetrate it successfully. The whole consular corps, all the Government officials, and all the better class alike of natives and foreigners at the time in Santo Domingo city are witnesses of the authenticity of the "find."

ON Monday afternoon a powerful shock of earthquake was felt in the island of Jersey. It was so strong as to cause houses to totter and bells to ring. Its course was from east to west. There was at the time a heavy gale from the south-west in the English Channel. At 11:55 A.M. the same day a shock, lasting about four seconds, was felt at Eastern Alderney. No doubt it was the same earthquake which was felt at Brighton, Blackheath, Fareham, and St. Leonards, as reported in yesterday's *Times*, and at Paris, Havre, and Rouen, as stated by the *Times* Paris correspondent. Mr. Dobson, writing to us from the Royal Victoria Hospital, Netley, Southampton, states that the first shock occurred there at seven minutes to twelve o'clock exactly, and lasted about five or six seconds. It was sufficiently strong to cause the door to shake with some violence, and many objects in the room continued to vibrate for a considerable time. The second shock occurred a few seconds afterwards, but lasted for a much shorter period. A shock was felt at Lisbon on Saturday, being the third shock during the present winter.

A CIRCULAR signed by Mr. Justin Winsor, librarian of Harvard College, Cambridge, Mass., informs us that it is proposed to issue by subscription a catalogue of scientific serial publications in all languages, which has been prepared by Mr. Samuel H. Scudder, librarian of the American Academy of Arts and Sciences, and formerly librarian of the Boston Society of Natural

History, and well known for his various scientific publications. This work, which has double the extent of any existing list of the like kind, aims to include all society transactions and independent journals in every branch of natural, mathematical, and physical science, excepting only the applied sciences—medicine, agriculture, technology, &c. The different institutions or periodicals are arranged under the towns in which they are established or published, and the towns follow an alphabetical order under their respective countries. Cross references are given wherever desirable. The work will be printed in large octavo, will extend to almost 300 pages, and will be delivered, bound in cloth, to subscribers at four dollars the copy. Other copies will be printed on one side of the leaf—to be cut up for catalogue use—and will be delivered in folded sheets at five dollars the copy. Further details may be obtained from Mr. Winsor.

A SECOND edition of Dr. M. Foster's "Text-Book of Physiology," has been published by Messrs. Macmillan and Co. The work has been revised and enlarged, and a number of figures of instruments has been introduced.

IN a recent paper to the Göttingen Society of Sciences, M. Grinitz has compared what data he could obtain regarding the effects of the earthquake at Iquique on May 9 last year. Among other points, it appears that the wave travelled from Iquique to Hilo, in Hawaii, a distance of 5,526 nautical miles, in fourteen hours; which is at the rate of 670 feet per second. From this velocity the average depth of that portion of the ocean traversed can be calculated by Airy's or Russell's formulæ; it is found to be 2,324 fathoms. The wave had an unbroken course to Hilo, but not so to Honolulu, as it encountered the islands of Hawaii, Maui, &c. The average velocity to Honolulu was 6545 feet per second; and the average sea-depth inferred is 2,219 fathoms. The corresponding numerical data for Apia, Lyttelton, Uskaroo, in New Zealand, Komaishi, in Japan, and other places, are given. (For the last-named a velocity of 679 feet per second was obtained.) On comparison with Hochstetter's results for the earthquake of 1868, and with direct sea-measurements there is seen to be a very fair agreement. Hochstetter's assertion is, on the whole, confirmed, that the velocity of the earthquake wave and the lunar tide wave are identical.

WE have received from Messrs. Hardwicke and Bogue the first volume of their illustrated publication, *Industrial Art*, a monthly review of technical and scientific education at home and abroad. We have carefully examined the work and can say that the text and illustrations run each other very hard for carrying off the palm of excellence. We are glad to gather from the evident success of the venture that the time has arrived when scientific matter is regarded as the natural and necessary accompaniment of a complete reference to art matters. The articles on technical education in France, Austria, and Germany are thoroughly well done.

WE are glad to be able to point to another instance of a collection of the papers of a scientific man during his lifetime. Following hard upon the appearance of Dr. Frankland's collected papers Dr. Lloyd, of Dublin, has published a volume of 500 pages (Longmans) containing his memoirs, reports, and addresses given from time to time, from his classical paper on Conical Refraction to his address delivered before the British Association in 1857. The volume is a very valuable one for a scientific library, for at different times Dr. Lloyd has directed his attention to optics, terrestrial magnetism, and meteorology, and not only have we here the original papers but a series of reports on the progress and present state of physical optics extending over nearly 150 pages somewhat after the style of Verdet's introductions to the various parts of his work.

THE first general meeting of the Institute of Chemistry of Great Britain and Ireland will be held at the rooms of the Chemical Society, Burlington House, Piccadilly, to-morrow, at 4 P.M., to receive the report of the Council. A balance-sheet will also be presented by the treasurer.

WE have received one more evidence of the revival of activity in Italy, in the shape of the first number of a new weekly journal, *La Rassegna Settimanale di Politica, Scienze, Lettere ed Arte*, in which a fair amount of space is devoted to science. It is published at Florence.

THE following is a simple method recommended by Dr. Günther of Berlin, of observing the reversal of the coloured lines of flame-spectra. A thin platinum wire about five ctm. long, is fixed with one end in a glass tube (as holder), and one or two ctm. from the glass it is bent round to a right angle, and inserted in the envelope of a Bunsen flame, so that the free end, held vertical, is heated to a white glow. Into the diametrically opposite part of the flame-sheath is brought a sodium salt. This colours the flame. You then look through a weakly-dispersing prism (the combinations used for direct vision spectroscopes serve best), and through the sodium flame, towards the glowing wire. Two things are observed, (1) the spectrum of the monochromatic sodium flame, which appears in the form of the flame; (2) the spectrum of the glowing wire, which appears as a coloured band, but is broken by the dark D-line. Other metallic spectra may also be shown in this way; only care must be taken that the coloration of the flame be very intense.

AT Hanover the skeleton of a mammoth has just been found, through some excavations which are being made for waterworks near the Ricklinger Beeke. At present only the skull and a tusk have been brought to light, the latter having the circumference of a human leg. The fossils are lying at a depth of six metres.

THE publishing firm of Edouard Rouveyre, in Paris, announces the publication of a voluminous catalogue containing the titles, &c., of all those works, books, pamphlets, &c., which, in the period from October 21, 1814, down to July 31, 1877, have been prosecuted, suppressed, or confiscated, in France. It will appear in five parts, at two francs each.

AT the beginning of the year the new Royal Library of Stockholm, which has now been transferred to the new building at the Humlegården, was opened to the public. The new edifice was erected after the design of the architect, Herr G. Dahl, at a cost of 900,000 Swedish crowns. The library, which at the beginning of the present century only numbered 30,000 volumes, now contains 200,000.

A NEW monthly periodical, exclusively devoted to the art of photography and its various branches, is being published since January 1, by Messrs. Ad. Braun and Co., of Dornach. Each number contains an artistic photograph. The title of the new serial is *Die Lichtbildkunst*.

UNUSUALLY severe avalanches are reported this winter from Styria. In the neighbourhood of Hiesflau one descended upon a railway train, crushing the carriages, and wounding a number, while at Neuberg another fell upon a chalet containing twelve persons, none of whom escaped.

IN the closing session of the German Chemical Society for 1877, Prof. Kekulé, of Bonn, was elected president, Professors Hofmann and Liebermann of Berlin, Prof. Fehling of Stuttgart, and Prof. Erlenmeyer of Munich vice-presidents. The Society elected also as honorary members the two physicists, Prof. Buff of Giessen, and Prof. Kirchhoff of Berlin, and Dr. Stenhouse of London. At the end of its first decade the German Chemical Society looks back upon a period of rapid growth in numbers and efficiency certainly unparalleled in the history of any society

devoted to a special science. These results are due to several marked causes, which could well be imitated by other associations possessing analogous aims, viz., ease of admission, absence of entrance fee and smallness of the annual subscription, simplicity of the statutes, and rapidity and frequency in the publication of the proceedings. The number of members at present is 1,827, showing an increase of 229 during the year. Of these 206 reside in Berlin and 542 outside of Germany and Austria. The membership compares favourably with that of the older sister societies in London (952), and Paris (371). Although the annual payment is so small (15 marks) the society possesses a capital at present of 22,700 marks. During the past ten years the *Berichte* of the society have contained 3,726 communications, covering nearly 14,000 pages. A very complete index to this enormous amount of material will appear during the course of the present year, the compiler of which was selected by competition from among the twenty-nine applicants attracted by the unusually liberal appropriation of 5,000 marks for the work. In addition to the extensive chemical correspondence from America, England, France, Italy, Russia, Sweden, Switzerland, &c., the value of the *Berichte* in the future is to be increased by a complete series of abstracts on all papers appearing in German chemical periodicals. In the last number we notice a very full and interesting sketch of the late Prof. Oppenheim from the pen of Prof. Hofmann, as well as a detailed account of the Chemical Section at the German Association meeting at Munich by Prof. Liebermann.

THE French Academy of Sciences numbers at present 63, three places being vacant by the deaths of Regnault, Becquerel, and Leverrier, the members being divided into eleven sections of six each. There are in addition ten French free academicians and eight foreign associates. The corresponding members, of whom there can be 100, are divided according to their nationality as follows:—France, 32; Germany, 19; Great Britain, 16; Russia, 6; Italy, 2; Austria, 1; Denmark and Sweden, 4; Switzerland, 4; Belgium, 2; United States, 3; Brazil, 1; and there are 11 vacancies.

THE additions to the Zoological Society's Gardens during the past week include a Common Fox (*Canis vulpes*), European, presented by Mr. George Fredericks; two Black Swans (*Cygnus atratus*) from Australia, presented by Capt. W. H. Eccles; a Wood Owl (*Syrnium aluco*), European, presented by Mr. J. E. Liardet; a Common Magpie (*Pica caudata*), a Jackdaw (*Corvus monedula*), European, presented by Mr. G. E. Ladbury; a Hoary Snake, (*Coronella cana*) from South Africa, presented by the Rev. G. H. R. Fiske, C.M.Z.S.; a Jackass Penguin (*Spheniscus magellanicus*), an Upland Goose (*Bernicla magellanica*) from Chili, two West Indian Rails (*Aramides cayennensis*) from South America, purchased; a Derbian Opossum (*Didelphys derbianus*) from South America, deposited; a Hog Deer (*Cervus porcinus*) born in the Gardens.

RAINFALL IN INDIA

WE have received so many long letters from India on the various aspects of the rainfall question that we must either, from want of space, leave them unpublished, or briefly give the gist of them. We adopt the latter course.

Mr. Archibald sends us a long letter on the seasonal rainfalls of Northern India in connection with the sun-spot period, in which he communicates a few of the principal results obtained from a more detailed and extensive comparison, which the paucity of data at his command hitherto had rendered it impossible to undertake. In the present investigation the registers of eight stations, four in Bengal, and four in the N.W.P. have been employed, and the two seasonal falls of each year, compared (1) for each station separately, and (2) for groups of four and all together, with its position in the sun-spot cycle.